

CRUISE REPORT, CHES86-1

86022

Vessels: RV Dan Moore--Cape Fear Tech (first week)
RV Discovery--Maryland Geological Survey (second week)
Cruise number: CHES86-1
Parent project: Geology of Chesapeake Bay
Cooperators: Virginia Institute of Marine Science, Maryland Geological Survey, Cape Fear Tech
Area of operations: Central Chesapeake Bay
Cruise dates: 22 September - 3 October, 1986
Chief scientist(s): Steve Colman (USGS)
Jeff Halka (MGS)
Woody Hobbs (VIMS)
Other scientific: Ron Circe (USGS)
Technician: Dave Nichols (USGS)
Ships' captains: Jerry Cox (MGS)
Steve Beuth (Cape Fear Tech)

12 days

Purpose of cruise:

Collection of high-resolution seismic-reflection and sidescan-sonar data in order to define the geology and shallow structure of the Chesapeake Bay. The data will contribute to understanding the history and evolution of the Bay, and will provide basic data for management and planning decisions for the Bay, including those related to waste disposal; pollution control and clean-up; dredging and dredge-spoil disposal; and sand, gravel, and biological resources.

Navigation:

Positions were determined from Loran-C time delays using the Branch's IBM-PC system, on lines 9960-X and 9960-Y. Coordinates were recorded on disc at 30 second intervals and printed at five minute intervals. Coordinates were also recorded by hand on the seismic-reflection records.

Scientific equipment employed:

ORE Geopulse seismic-reflection system
Benthos 10-element hydrophone streamer
DataSonics high-resolution seismic system
EG&G SMS 960 sidescan-sonar system
IRIG-B time-code generator
EPC 312 record annotator
EPC 3200 graphic recorder
EPC 4800 graphic recorder
Hewlett-Packard 8-track analog tape recorder

Equipment performance:

All equipment performed extremely well, with the exception of the sidescan-sonar system, which failed completely on the first day due to a cable break.

Cruise Summary:

The cruise was very successful and was blessed with extremely good weather. A total of 358 nm (662 km) of tracklines were covered. The vessel Dan Moore was particularly useful in the wide central part of the bay, where we could stay out overnight and collect as much as 62 nm of data in a day. The seismic-reflection records obtained were very good except in local areas where the sediments contained biogenic gas. Penetration achieved by the seismic signals was mostly 100 msec or more, and the records clearly show the entire Quaternary and upper part of the Tertiary sequence of deposits. Multiple overlapping channels and channel-fill deposits related to major fluctuations in sea level were observed. The cruise effectively filled in between the areas covered by the previous two cruises, completing the basic seismic-reflection grid between the mouth of the bay and the Patuxent River.

Attachment: track chart

cc: R. Halley	T. Aldrich
H. Knebel	T. O'Brien
M. Bothner	E. Winget
N. Soderberg ✓	J. Williams

CHESAPEAKE BAY

